

REPORT

OF THE

Committee on Terminal Facilities

NEW YORK AND BROOKLYN BRIDGE.

T. C. CLARKE, E. E.,

JAMES HOWELL, President,

} *Committee.*

Brooklyn, April 17th, 1888.

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NEW YORK AND BROOKLYN BRIDGE.

REPORT OF COMMITTEE ON TERMINAL FACILITIES.

*To the Board of Trustees of the New York and Brooklyn
Bridge :*

GENTLEMEN,—The undersigned, on the 23d of February, received from the Board of Experts their report on the enlargement of traffic facilities at the New York terminus of the Bridge. This Report, which you have received, is a very careful and exhaustive one, worthy of the reputation of its authors, and one which clears the way toward arriving at definite conclusions.

The Board of Experts were not asked to estimate the cost of the improvements recommended by them, and immediately upon receiving their Report the Chief Engineer, Mr. Martin, was instructed to make careful estimates of the cost of lands, buildings, new machinery and cars, necessary to apply the circulating system as designed by A. M. Wellington, C. E., to both termini of the Bridge. His Report, just received, gives the cost as follows :

COST OF THE WELLINGTON CIRCULATING SYSTEM FOR
EIGHTEEN-CAR TRAINS.

Description.	New York Terminus.	Brooklyn Terminus.	Total.
Real Estate for Stations.	\$1,797,750	\$456,500	\$2,254,250
Real Estate for Store Yards		448,000	448,000
Station Buildings.	1,100,000	1,100,000	2,200,000
New Plant and Machinery.			475,000
100 New Cars			400,000
Total.			\$5,777,250

This is a very large sum, and one which it might be wise to expend, so far as it would go, in providing new bridges or tunnels, rather than to expend it upon the present Bridge.

The attention of your Committee and that of the Chief Engineer was then directed to see how the present system can be enlarged. The Board of Experts in their report (p. 10), say: "The maximum capacity of the Bridge Railway can only be attained by increasing the number of cars per train to the limit most desirable in actual service (which experience in operating them alone can demonstrate), and in fixing the headway intervals as short as absolute safety requires for handling trains of increasing lengths." This is very sound advice, and acting upon it, investigations have been made, which show that it is impracticable to run eighteen-car trains as proposed by Mr. Wellington. The Chief Engineer considers, and your Committee agree with him, that four-car trains

are about as long as can be safely and quickly handled.

This does not affect the adoption of the circulating system at all, for that is merely a method of avoiding switches and an adaptation to limited space. The space in Brooklyn is not limited, and there is no reason why the present rectangular system with tail switching, modified as suggested by the Chief Engineer, will not answer every purpose for the Brooklyn terminus for some years to come.

The same system can also be applied to the New York terminus, and no encroachment beyond the present lines of tracks upon Centre street, and no new lands will be needed. This modification of the present system is merely to add two more tracks parallel to the present ones, with intermediate platforms, all as shown in accompanying drawings, marked :

A, proposed New York terminus.

B, proposed Brooklyn terminus.

A double set of rails will be required on each track, to avoid the use of switches for incoming trains, and leave the tracks unbroken. Under the present system the capacity of the Bridge Railway is limited by the time required to stop trains, unload them, switch them into place and reload them, which is *eighty seconds*.

But if two trains can be loaded and unloaded simultaneously, they can be despatched in half the time now required, say *forty seconds*, thus doubling the present capacity of the road.

The following table will show the increase :

Systems.	Intervals between trains. Seconds.	Number of cars per train.	Number of trains per hour.	Number of cars per hour.	Passengers carried per hour.	
					Seated 42 in car.	Seated and standing 126 per car.
As now operated with 3 car trains.	80	3	45	135	5,670	17 010
As now operated with 4 car trains.	80	4	45	180	7,560	22,680
Proposed plan 4 tracks and 4 cars.	40	4	90	360	15,120	45,360

The cost of this improved system is estimated by the Chief Engineer, as follows :

Rectangular system four tracks

	N. Y. Station.	Brooklyn.	Total.
Real Estate for Stations.	none.	none.	none.
Store Yards for 75 cars.			\$168,000
Station Buildings.	\$140,000	\$120,000	260,000
75 New Cars.			300,000
New Plant and Machinery.			45,000
Total.			\$773,000

Your Committee have no doubt that this improved rectangular system is the one to be first carried out, and used until the traffic outgrows it.

There is nothing new or experimental about it. Its safety has been tested by over four years' experience and the conveyance of *ninety million passengers*, in more than 700,000 trains without accident to life or limb with the exception of the loss of a foot by a passenger in December, 1885.

It requires only slight alterations of the present machinery and the alterations to the tracks, platforms and buildings can be carried out gradually and paid for out of the earnings of the Bridge, as in the past. These changes will not interfere in the least with the traffic upon the Bridge.

The safety appliances recommended by the Board of Experts can be equally well applied to this system as to the circulating system, should it be decided that they are needed.

So also a second set of overhead tracks to carry the trains of the Brooklyn Elevated Railways can be applied to one system as well as another if they are wanted.

It now only remains to consider what shall be done in the future, when this system is outgrown.

The number of passengers carried in 1887, by three-car trains in eighty seconds apart was 27,940,000. With the same average number of passengers per car the yearly number that can be carried will be about 75,000 000.

According to the estimate of the Board of Experts this number will not be reached until 1895, or seven years from now. Up to that time this proposed system will answer with an expenditure of \$773,000.

It seems to your Committee that it would be a more prudent and conservative course to put this system in operation and postpone the large expenditure until the traffic demands it.

In this age of inventions there is no knowing what

the next seven years may produce, and if the Bridge Trustees are not hampered by a present expenditure of nearly six million dollars, they will be ready for the best thing that offers.

We now recommend that the President and Chief Engineer be instructed:

First—To put four-car trains in operation on the present system.

Second—To prepare for the doubling of this system as above described and shown in plans *A* and *B*, and put it in operation as soon as the needs of the traffic shall demand it.

And your Terminal Committee now ask to be discharged.

All of which is respectfully submitted,

T. C. CLARKE. E.

JAMES HOWELL, President.

Committee.

BROOKLYN, April 17, 1888.

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